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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.               | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------------|------------------|
| 10/754,720  | 01/12/2004  | Yeou-Pin Guu         | GUUY 3001/EM                      | 1351             |
| 23364 7590 04/02/2007<br>BACON & THOMAS, PLLC<br>625 SLATERS LANE<br>FOURTH FLOOR<br>ALEXANDRIA, VA 22314 |             |                      | EXAMINER<br>BOWERS, NATHAN ANDREW |                  |
|   |             |                      | ART UNIT                          | PAPER NUMBER     |
|   |             |                      | 1744                              |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE  |             | MAIL DATE            | DELIVERY MODE                     |                  |
| 3 MONTHS  |             | 04/02/2007           | PAPER                             |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/754,720

Applicant(s)

GUU ET AL.

Examiner

Nathan A. Bowers

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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1) Claims 1-5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita (EP 1182250) in view of Orthman (US 6358749).

With respect to claims 1 and 9, Takeshita discloses a organism cell auto-handling apparatus and method that comprises the use of a platform (Figure 1:12) for holding thereon at least one organism cell sample (Figure 1:13). A CCD camera (Figure 1:7) is provided for identifying coordinates of a specific cell organelle for producing a corresponding coordinate data according, and a piping device (Figure 1:5) having a micro needle (Figure 1:6) is used to draw/inject compounds to and from the organelle. A system controller (Figure 1:1 and Figure 1:2) is provided for receiving coordinate data from the CCD camera, and is capable of controlling the relative movement between the platform and the piping device. This is described in paragraphs [0001], [0005], [0012], [0027], [0031]-[0034] and [0038]. Takeshita, however, does not expressly indicate that the CCD camera is paired with an observation microscope unit.

Orthman discloses an organism cell auto-handling apparatus comprising an observation microscope (Figure 1:28) and a CCD camera (Figure 1:26) that work in cooperation to produce coordinate data that is sent to a system controller capable of regulating the motion of a micro needle (Figure 1:22). This is described in column 3, line 16 to column 4, line 16 and in column 5, line 18 to column 6, line 33.

Takeshita and Orthman are analogous art because they are from the same field of endeavor regarding cell auto-handling apparatuses.

At the time of the invention, it would have been obvious to incorporate a microscope in the optical observation system of Takeshita. In column 3, line 16 to

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column 4, line 16, Orthman indicates that it is known in the art to utilize a microscope during the visualization of cells and the positioning of a micro-dissection needle.

Orthman teaches that the use of a microscope results in a process that is easily automated, fast and efficient.

With respect to claims 2 and 3, Takeshita and Orthman disclose the apparatus in claim 1 wherein the piping means is fixed in position and the platform is controllable by the system controller to make at least 2-dimensinoal motion. In paragraph [0032], Takeshita states that the platform is movable along the X-axis and the Y-axis. Paragraph [0032] also states that, alternatively, the platform position can be fixed and the piping means can be movable in multiple directions.

With respect to claims 4 and 5, Takeshita and Orthman disclose the apparatus in claim 1 wherein the organelle observation microscope unit comprises a microscope, a programmable multi-wavelength light source, and an image sensor. As previously mentioned, the combination of Takeshita and Orthman discloses the use of a microscope and an image sensor. Takeshita additionally teaches that a light source (Figure 1:10) is provided. Multi-wavelength light sources are considered to be well known in the art.

With respect to claim 8, Takeshita and Orthman disclose the apparatus in claim 1 wherein the micro needle has a pointed end that has a caliber greater than the cell

organelle to be drawn/injected. This is apparent from the Figures of the Takeshita reference. Micro needles comprising large calibers (in relationship to cell organelles) are known in the art.

2) Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita (EP 1182250) in view of Orthman (US 6358749) as applied to claim 1, and further in view of Engelhardt (US 20010053018).

Takeshita and Orthman disclose the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 103 rejection above, however do not expressly disclose that the microscope is a confocal microscope.

Engelhardt discloses an apparatus that comprises a system controller capable of precisely positioning a microinjection needle relative to a cell using information received from a confocal microscope. This is described in paragraphs [0007]-[0021].

Takeshita, Orthman and Engelhardt are analogous art because they are from the same field of endeavor regarding cell auto-handling apparatuses.

At the time of the invention, it would have been obvious to ensure that the microscope disclosed by Orthman was a confocal microscope. Confocal microscopes are beneficial because they are known to eliminate out of focus information and thereby improve image quality. Engelhardt suggests in the "Background" section that confocal microscopes are well known in the art.

3) Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita (EP 1182250) in view of Orthman (US 6358749) as applied to claim 1, and further in view of Higuchi (US 5225750).

Takeshita and Orthman disclose the apparatus set forth in claim 1 as set forth in the 35 U.S.C. 103 rejection above, however do not expressly indicate that the piping device comprises a micro pump.

Higuchi discloses a microinjection apparatus that includes a platform (Figure 4:32), a microscope (Figure 4:52), a piping device having a micro needle (Figure 4:41), and a system controller (Figure 1:12). Column 3, line 56 to column 4, line 12 indicates that micro pumps are connected to the ends of micro needles in order to deliver and remove compounds to and from the cells.

Takeshita, Orthman and Higuchi are analogous art because they are from the same field of endeavor regarding cell auto-handling apparatuses.

At the time of the invention, it would have been obvious to incorporate micro pumps into the construction of the piping device in order to provide an effective way to move fluids through the micro needles. Higuchi indicates that micro pumps are easily automated and regulated using a control device, and thereby serve to increase precision and reduce the time necessary to complete an operation.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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